

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

*AB  
7/12/02*

In re PATENT APPLICATION OF

HARBERD et al

Atty. Ref.: 620-91

Serial No.: 09/485,529

Group Art Unit: 1638

Filed: March 1, 2000

Examiner: Ibrahim, M.

For: GENETIC CONTROL OF PLANT GROWTH AND  
DEVELOPMENT

\* \* \* \*

July 8, 2002

PETITION FROM REQUIREMENT FOR RESTRICTION

Hon. Commissioner of Patents  
and Trademarks  
Washington, DC 20231

Sir:

Applicants hereby petition the Commissioner to invoke his supervisory authority and have the requirement for restriction as between the subject matter of Groups I-V, as defined in the Office Action dated October 3, 2001 and as redefined in the Office Action dated February 6, 2002, withdrawn. In addition, Applicants petition the Commissioner to invoke his supervisory authority and have the requirement for election a sequence, which requirement is set forth in the Office Action dated October 3, 2001 and is restructured in the Office Action dated February 6, 2002, withdrawn.

The following is a statement of facts and point or points to be reviewed and the action requested.

In the Office Action dated October 3, 2001, the Examiner required restriction to one of Groups I-V and

07/12/2002 GPAYNE 00000002 141140 09485529

644342

02 FC:122

130.00 CH

HARBERD et al -- Serial No.: 09/485,529

further restriction to a single sequence. In the Amendment filed December 3, 2001, Applicants elected, with traverse, the subject matter of Group I and the sequence of SEQ ID NO:104, and requested reconsideration of the requirements for restriction.<sup>1</sup>

As Applicants understand the Office Action of February 6, 2002, the Examiner has made final the requirement for restriction as between the subject matter of Groups I-V. Applicants also understand that the Examiner has restructured the requirement for election of a single sequence such that the sequences of SEQ ID NOS:104 and 7 (and encoding polynucleotides of SEQ ID NO:105 and 14, respectively) are under consideration.

Applicants hereby petition the Commissioner to invoke his supervisory authority and have the requirement for restriction as between the subject matter of Groups I-V withdrawn. In addition, Applicants request that the Commissioner have the Examiner withdraw the requirement for restriction to the sequences of SEQ ID NOS:104 and 7 (and the encoding polynucleotides of SEQ ID NOS:105 and 14, respectively).

The present application represents the national phase of PCT/GB98/02383.

Rule 13.1 PCT states:

*'The international application shall relate to one invention only or to a group of inventions so linked as to form a single general inventive concept'.*

---

<sup>1</sup> In the December 3, 2001 Amendment, clarification of the nature of the restriction requirement was also requested and it appears from the February 6, 2002 Office Action that elected Group I includes claims 1-46, 55 and 56.

HARBERD et al -- Serial No.: 09/485,529

All the present claims, in particular all the sequences disclosed, fall within a single inventive concept (as evidenced by the presence of the same or a corresponding special technical feature) as defined by Rule 13 PCT.

Rule 13.2 PCT 1st sentence states:

*'Where a group of inventions is claimed in one and the same international application, the requirement of unity of invention referred to in Rule 13.1 PCT shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding technical features'.*

Rule 13.2 PCT 2nd sentence states:

*'The expression "special technical features" shall mean those technical features that define a contribution which each of the claimed inventions considered as a whole, makes over the prior art'.*

Thus, where there exists the same or a corresponding feature which defines the contribution made by the invention over the prior art as defined by Rule 13.2 PCT 2nd sentence, there exists a single inventive concept which confers unity of invention under Rule 13.1 PCT.

The Rht phenotype is a particular dwarf phenotype in wheat which is known in the art. The corresponding phenotype has also been characterized in other plants such as maize, where it is known as D8/D9 (see page 3, line 27-page 4, line 17, of the present application).

HARBERD et al -- Serial No.: 09/485,529

The nucleotide sequences set out in the present application are responsible for the *Rht* dwarf phenotype or its equivalent in other plants. Applicants have discovered that a particular sequence element which is responsible for the gibberellin interaction is an important characteristic of the wild type sequences. The identification of this element enables homologues from other species to be cloned and also allows plant responses to gibberellin to be manipulated.

The provision of the nucleotide sequences responsible for the *Rht* phenotype or its equivalent in other plants are corresponding special technical features that are reflected in all the present claims. Sequences that reflect these corresponding special technical features can be wild type and lead to a normal phenotype or can be mutants and lead to the *Rht* phenotype. These features reflect the contribution made over the art since none of these gene sequences has previously been described (i.e. they are not present in the art).

All the present claims therefore relate to a single inventive concept and fulfill the requirements for unity under Rule 13 PCT.

Many dwarf phenotypes have been identified in plants. Two particular dwarf phenotypes in maize are described in Haberd et al (1989) (cited by the Examiner in the October 3, 2001 Action). A phenotype is however not an isolated gene. While the existence of a particular phenotype may be attributed to a genetic mutation, it provides no information about the molecular basis of that mutation. The practice in the art of naming the gene after

HARBERD et al -- Serial No.: 09/485,529

the known phenotype is not an indication that the gene was known at the time the phenotype was identified.

Chaing et al (WO96/05317) (also cited by the Examiner in the October 3, 2001 Action) describes the molecular basis of the GA4 phenotype and discloses a protein and a nucleotide sequence. This *Arabidopsis* dwarf phenotype is one of a group of known gibberellin sensitive phenotypes (GA1, GA2, GA3, GA4, and GA5: see page 1 of Peng et al (1993) *The Plant Cell* 5 351-360). The addition of exogenous gibberellin to mutants of this type overcomes the phenotype. Page 21, line 2, and page 10, lines 13-17, of Chaing et al confirm that GA4 mutants are gibberellin sensitive. Thus, they are distinct from the *Rht*-type dwarf mutants described in the present application, which are gibberellin insensitive.

The unity of the subject-matter of the present application is clearly not affected by the disclosures of the cited prior art documents. Indeed, the Examiner acknowledges this to be the case in the February 6, 2002 Action.

Groups II - V relate to methods of identifying *Rht* polynucleotide, isolated *Rht* polypeptide, antibody which binds *Rht* polypeptide and methods of identifying *Rht* polypeptide. All these groupings possess a special technical feature which corresponds to that described above (i.e., an *Rht* polypeptide or encoding nucleotide) and are therefore part of the same inventive concept as Group I.

Further as regards the requirement for restriction to sequences of SEQ ID NOS:104 and 7 (and respective encoding sequences of SEQ ID Nos:105 and 14), attention is directed to the fact that sequences other than those of SEQ ID

HARBERD et al -- Serial No.: 09/485,529

NOS:104, 7, 105 and 14 are recited only in claims that depend from claims that recite SEQ ID NOS:104, 7, 105 and 14. Accordingly, no basis for requiring restriction in this regard is seen. Clearly, a search of the elected claims and sequences would encompass the non-elected sequences and thus no additional burden would be placed on the Examiner if this requirement for restriction were to be withdrawn.

Grant of this petition is requested. The requisite fee is attached.

Respectfully submitted,

**NIXON & VANDERHYE, P.C.**

By Mary J. Wilson  
Mary J. Wilson  
Reg. No. 32,955

MJW:tat

1100 North Glebe Road  
8<sup>th</sup> Floor  
Arlington, Virginia 22201-4714  
Telephone: (703) 816-4000  
Facsimile: (703) 816-4100